THE OPTICAL

MAGIC LANTERN

JOURNAL

AND

PHOTOGRAPHIC ENLARGER.

A Magazine of Popular Science for the Lecture-room and the Domestic Circle.

Published on the 15th of each month.

Vol. 1.—No. 3. [Entered at Stationers' Hall.] AUGUST 15, 1889. Price One Penny.

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The American Journal of Photography, speaking of *The Optical Magic Lantern Journal and Photographic Enlarger* remarks that this is the only journal in the English language devoted to thesubject.

Wilson's Photographic Magazine (New York), referring to *The Optical Magic Lantern Journal and Photographic Enlarger* says: "This new candidate for photographic favour is wanted, will find a useful place, and we wish it much success."

Anthony's Photographic Bulletin (New York) says: *The Optical Magic Lantern Journal and Photographic Enlarger* is a new English paper devoted to the Lantern and enlargements and is edited by Mr. J. Hay Taylor, son of Mr. J. Traill Taylor. We are sure that a good journal devoted to the interests of the lantern will succeed especially in England, and, judging from the contents of the initial number of the journal before us, this new enterprise looks like success. Those of our readers interested in the lantern will find this journal very useful."

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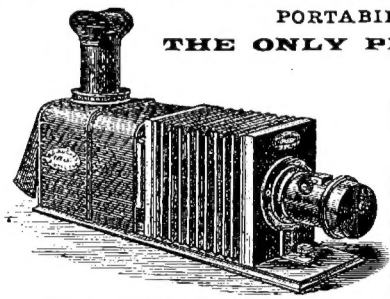

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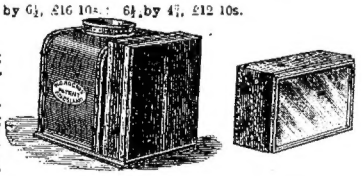

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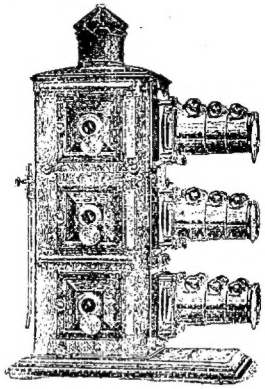

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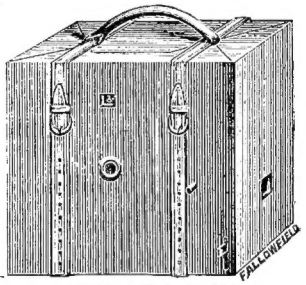

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Notices.

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Editorial communications must be addressed, The Editor; advertisements and business communications to Taylor Brothers, care of the Publishers, Dorset Works, Salisbury Square, Fleet Street, London, E.C.

Notes.

MUCH has been said and written of late about the fiftieth anniversary of photographic art-science, but it has been left to the proprietor of a dining room in Blackfriars Road to exhibit a photographic print of a few centuries (?) old. He has in his window two photographs, one showing the premises in 1685 and the other in 1885, and if we mistake not, the same personage appears in both. Perhaps he comes of a long-lived race.

* * *

THE above is suggestive of a certain firm who publish an illustrated Bible with authentic portraits of the old patriarchs and men of note of a former epoch *taken from life*.

* * *

FROM the South of Mexico we learn that the lantern is now being greatly employed as an educational power. Geography is taught in a somewhat novel manner. A smoked piece of glass is inserted as a slide, and, by means of a pointer moved from the outside, sharp bright lines are traced upon it. One who was present describes the scholastic scene as most sensational. Every eye was intently fixed upon the screen, watching with avidity the creation of foreign countries by the pointer, which was actuated by a pantagraph-like apparatus. Scenes thus impressed are very rarely forgotten.

* * *

IT is asserted that 350 tons of sulphur are thrown into the air every day in London during winter. This represents upwards of 1,000 tons of monohydrated sulphuric acid daily acting in a deleterious manner.

* * *

M. C. REINHARDT, speaking of German methylated spirits, says he has found that the spirit of commerce, introduced since the alcohol tax was levied in Germany, has a most destructive action on copper, zinc, brass, &c., so that the brass lamps used in laboratories have required frequent repairs. Even platinum vessels placed over it are acted upon to such an extent that they soon become useless.

The Magic Lantern: Its Construction, Illumination, Optics and Uses.

Chapter III.—The Object Glass.

While on the condenser depends the equality of the illumination of the disc, it is the object-glass that determines the nature of the definition of the projected picture.

Equality of sharpness is of primary importance. It is very unpleasant to see the centre of the disc very sharp, accompanied with a rapid falling off towards the edges. Much better were it that there should be a lowering of the definition in the centre, with a corresponding increase towards the sides. In this matter let us learn a lesson from the drop scene of a theatre. When stepped up to and examined from a distance of two or three feet, there is no real sharpness anywhere to be seen, and yet to the spectators at a distance it is quite sharp and uniform. This ought to be the effect produced on the lantern screen. No part should be so absolutely sharp as to challenge a comparison between it and other less defined portions. We are not now speaking of projections intended for being enlarged photographically, in which the sharpness should be of the very highest order obtainable, but of those that are to be viewed on the screen from a moderate distance.

A good form of simple lens for a lantern objective is a one and three-quarter inch plano-convex lens of about six inches focus, with its flat side next the screen, and a three-quarter inch stop placed two inches in front.

But an improvement on this consists in the form with which all the best lanterns were fitted before achromatic lenses were used for this purpose. In this the aberrations were diminished by employing two lenses, a plano-convex and a meniscus, both placed close together, convex surfaces next to the picture, and the meniscus next the stop. With an object glass of this form, the focus was shortened to such an extent as to permit the lantern to be placed at a distance from the screen equalling the diameter of the disc. With lenses of such short focus, a square object, such as a picture of architecture, was shewn with a slight distortion of what is known as the *pin-cushion form*, to obviate which many of the hand-painted slides of the highest class were drawn with a slight barrel-shape distortion, by which they were projected upon the screen with perfect rectilinearity.

Some very experienced lantern exhibitors prefer and use object-glasses of a similar character, but those are now composed of one, two, or even three plano-convex achromatics, screwed in cells fitting one into the other like the triplet system of French microscope objectives. In addition to giving a disc of great uniformity, this system possesses the advantage of allowing the exhibitor to place his lantern at any convenient standpoint, and to use or combine any of the lenses to fill his screen; for with three lenses, each of a focus different from the other, we have in effect seven object-glasses, all of different foci.

It is to be noted that with object-glasses of the class to which we have hitherto alluded, the smaller the flame the greater will be the sharpness of the image on the screen. Dr. Monckhoven has given it as his opinion that when a light no larger than

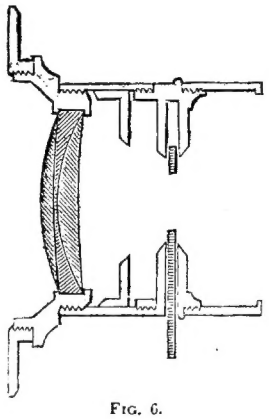


Fig. 6.

that of the limeball is used, the object-glass that will prove to be the best will be a single triple lens of a form similar to that shown in the cut, which is one of Dallmeyer's (fig. 6).

The object-glass that is at the present time made use of more extensively than any other is the portrait combination of Petzval. It consists of a plano-convex or slight meniscus achromatic convex at the outer end of a tube, with a separated pair of lenses, convex and concave, at that end next to the slide (fig. 7).

This combination gives excellent sharpness whatever be the nature of the light in the lantern, but unless the focus is rather long, the field is apt to be so round as not to give equal sharpness at the sides as at the centre. This could, of course,

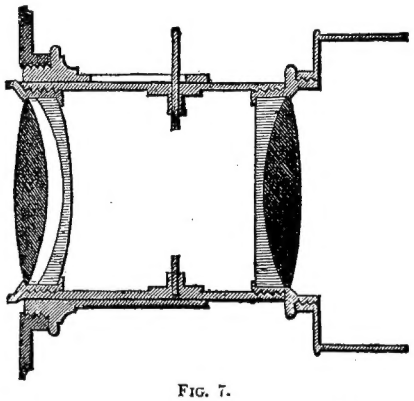


FIG. 7.

be remedied, as it is in the photographic camera, by making use of a stop; but while in the camera it entails only a slight increase in the exposure, it is fatal in the lantern that is being used for exhibition purposes, on account of its diminishing the light too much.

If the focus *must* be very short, then it is requisite that the back combination be of large diameter, and is not only possessed of considerable magnifying power, but also have a great amount of negative aberration; otherwise it will

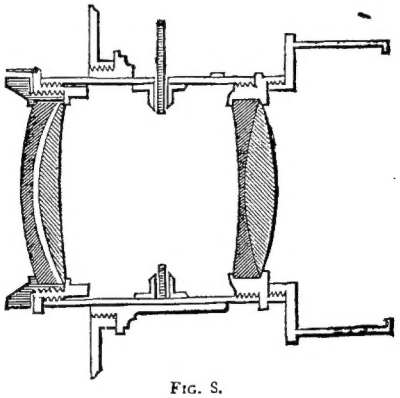


FIG. 8.

be impossible to get a flat field. The diameter of back lens must be greater than usual in order to take in all the cone of light from the condenser. The front lens need not be large, as the central portion only is called into requisition.

By considerably lengthening the tube of the Petzval portrait objective, and substituting a combination of the form here shown for the back, we have an object glass which better than any other gives equal sharpness over the field. Figure 8, which represents Dallmeyer's improvement on the Petzval system, explains an objective which, subject to a very slight modification, gives an image that shows scarcely any falling off at the margin. The modification, which applies only to our diagram, is the still further separation of the front from the back lens by merely lengthening the tube.

Some of the cheap French portrait lenses, now so much used for the lantern, can often have their flatness of field improved by unscrewing the back combination and removing the ring by which these lenses are separated, and placing them in juxtaposition. This flattens the field by increasing the negative aberration of the lenses.

In regard to the mounting of the object-glass, it is desirable, if not necessary, that in every instance it be fitted with rack and pinion, and that for convenience there be two nuts to the pinion, so as to be easily operated from either side of the lantern.

It is also necessary that facility be afforded for withdrawing the lens a considerable distance from the slide, so as to enable a lens of long focus to be used when necessary.

Probably the best and most convenient mount is the telescopic one of Mr. Wrench, shown in

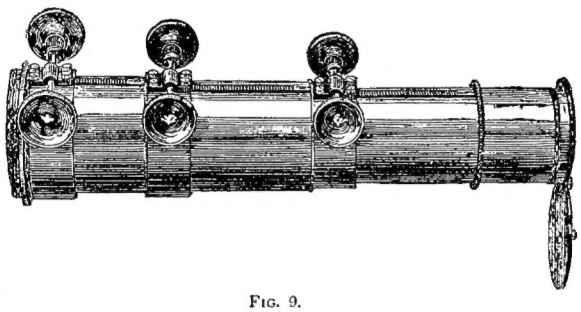


FIG. 9.

fig. 9, in which provision is made for object-glasses of either long or short focus.

In this, sets of lenses mounted in tubes of similar size are inserted by merely being pushed into the outer draw tube of the telescopic front.

The Screen.

THE lantern during the past few years has become very popular, and the weakest part of lantern exhibitions to my mind is the sheet or screen. By many it is thought that anything will do, and the result is, no matter how good the slides are, if the screen is not of the proper kind the pictures are spoiled. The lantern is fast becoming an educational instrument, both in schools and colleges, and when used for this purpose there is but little difficulty in providing the best possible screen—viz., a whitewashed wall; but to general lanternists it would be rather difficult to carry a screen of this kind about with them. The kind of screen most generally in use is the calico sheet, being easily packed up; but for amateur lanternists for home use a screen faced with white paper and mounted on roller and lath—map fashion—is by far the best; for an ordinary room a screen about ten feet square will be found ample. It must be borne in mind, the more opaque the screen the better will be the result. In making a screen of this kind it is best to get a sheet of calico as stout as possible, and some of the stoutest white lining paper, which can be obtained of any dealer in paper hangings, and face the sheet with it; and to make a still better job of it will be also to paper the other side of the sheet, with the object of making it more opaque. After it is well dry, the face of the screen had better be distempered with zinc white (which is the purest white known); its extra cost over ordinary whitewash will well repay its use. It was a screen of this kind that I used at the Crystal Palace. For larger screens that have to be folded up, a screen of this kind is entirely out of the question, and the only thing to be done is to go in for the best calico sheeting obtainable, which must be as stout as possible. Sheeting of this kind can be obtained up to ten feet wide. In making a large screen, say twenty feet square, a seam in the middle must be avoided, which is best done by putting a piece ten feet wide in the middle, and five feet on each side. It is best only to sew these seams; on no account must they be run and felled, as the felling, *i.e.* where the double thickness is, will show as an intense white line right up the seams in every picture I am well aware that many have an idea that it matters not how thin a screen is so long as it is white; to those who hold such an opinion, they will find themselves wonderfully deceived if, by way of experiment, they will attach a piece of *white* cardboard to the back of the sheet, and then throw the light from the lantern on to the face of the screen; if this be done they will find where the cardboard is—it will show an intense white patch, and the other part will be quite grey in comparison to the other part. With a screen of this kind, when fixing it, is to stretch or strain it as tight as possible; and the best means I know of accomplishing this is to have the sheet bound on the back edges all round with strong linen venetian blind webbing, with *large* brass eyelets (having about a quarter of an inch hole in them), placed about half a yard apart, taking care to have the webbing double thickness at each corner and well sewn. A screen in this way will stand an immense strain. All my portable screens are made in this manner. Tapes and slight brass rings are perfectly useless. If the lantern is to be manipulated from an opposite gallery, the screen is best perpendicular; if from the floor, to get the best result it must be tilted—*i.e.*, the bottom of the screen must be drawn back in accordance with the tilting of the lantern; and if the sheet is not strained *perfectly* tight like a drumhead, it will bag out in the middle, and the worst possible results produced, especially if there is not much depth of focus in the lenses. Many have an idea that the larger the screen the better, no matter the size of the room; this is entirely a mistake. Then, again, the distance of the audience from the screen is scarcely or never considered, which is very important. The front row ought never to be within the length of one diameter of the picture from the screen, and the other part of the audience from two to four diameters; if the room be larger than this, then the screen had better be of greater diameter if the best results are aimed at. I omitted to mention that the bottom of the screen must not be less than three feet from the floor of the room. I may at some future time have something to say upon lenses, light, &c.

WM. BROOKS.

Anecdote of David Livingstone, the African Explorer.

PERHAPS a lantern story associated with Livingstone may prove agreeable. On the last occasion of visiting this country Livingstone naturally gravitated to the home of his childhood, Blantyre, after which, and before returning to the Dark Continent for what proved to be the last time, he stayed for a while in Edinburgh beside his daughter, who was being educated there. During that brief residence he looked in one day to the place of business of the late W. D. Clark, then vice-president of the Edinburgh Photographic Society, where he met his early friend, enthusiastic admirer, and munificent supporter, the late James Young, of Limefield, of paraffin fame. They had been friends in youth, if not also schoolfellows.

After a pleasant chat another friend came in, the late Robert Bryson, Master of the Merchants' Company, &c. The names are mentioned, as all of them save the narrator are now dead. After a short period dinner was suggested by the hour and the need for it,

and agreed to, Livingstone stipulating that it was not to be in one of the "stuck-up" first-class places, but in some quiet place where we could feel at home, and accordingly we adjourned to —— hotel.

In the course of the after-dinner conversation the traveller incidentally remarked to Bryson that he must call on his brother, the optician, about his magic lantern, and in answer to a question as to what he could want with a lantern in the centre of Africa, he stated that it was his most valuable travelling friend—his bread-winner, in fact, as whenever his party got short of supplies, he had only to send word around that he was going to show the *pictures*, when the people would flock from far and near, each bringing a contribution in kind, and he added that they enjoyed the treat like so many children. In answer to further questions, he said they were best pleased with the funny slides, more especially if they were the moving ones, and gaudily coloured; they also took great interest in the black silhouette slides.

In the course of further chat he stated that they were inveterate gossips, and the speed with which news was circulated was astonishing. In every village there are many trained young fellows, active runners, who do little else than carry tidings from one townlet to another, and who can keep up an untiring trot for a whole day when necessary. It was, he said, something of the kind of thing Sir Walter Scott describes in the "Lady of the Lake," in sending young Malise round with the Fiery Cross, and in an incredibly short space of time a wide area was informed of whatever was going on.

Of course, it was an oil lantern which was used, and he stated that he never ran short of oil, as the natives made capital burning oil, as he jocularly remarked, "Quite as good as your best paraffin, Young, and much sweeter scented."

I do not think this has ever been published, and it may help to throw a side-light on a homely aspect of the great African explorer.

Edinburgh. W. H. D.

Flashes on Lantern Topics.

IN "Selections," one is quoted from Ed. Muybridge, but it must be taken with the proverbial grain of salt, while it may serve to draw attention to the fact that too close attention to one subject tends to narrow the mental vision. It is true that in the tombs and sepulchred chambers of Egypt there are many well-preserved mural paintings, and among them there are some which depict animals in motion, but the date of those pictures—taking the most extreme computation—can at the earliest be only put as far back as Menes, the proto king of Egypt; and he is mentioned as, at least, four dynasties before the pyramids. The furthest back period I find for him is about 7,000 years before the Christian era; but those speculative dates are much like the geological epochs—a mere guess. In the Æons, before the Egyptian civilization had even begun to take shape, the prehistoric artist of the glacial period had carved on the horns, bones, and tusks of the animals of the period—the woolly or hairy elephant, the mammoth, the giant elk, and others of his class—similitudes of the animals they caught and killed. The drawing and spirited action depicted by those prehistoric artists would do no discredit to the untrained artists of to-day, and then to think of the poor tools they had to carve the ivory, the horn, and the bone. Verily, the true artist's spirit was there, otherwise the figures of the animals in motion, even to the extent of showing them in death struggles after the chase, could not have come to us as they are.

If Mr. Muybridge is doubtful of this, let him look up the antiquarian museums of this old Europe of ours, specially those of Scandinavia, Britain, and France, and he will find that the earliest depicted examples of animals in motion are not to be found in Africa, but in Europe, and are of a date long before Egyptian civilization had yet taken shape.

In this connection, any London readers will find in Calder Marshall, R.A.'s, noble marble piece of statuary a lesson that will not soon be forgotten by anyone having the slightest artistic feeling. There is a copy of it in the South Kensington Museum; the title is "The Prehistoric Artist."

Megascope.—More than twenty years ago one form of this instrument was made use of at one or two of the meetings of that society which has done so much to popularise the use of the Optical Lantern. I allude to the "Edinburgh Photographic." It proved a great success; but to work it properly requires considerable lantern experience.

Black Grounds for Statuary Slides.—The late Dr. Strethill Wright, M.D., F.R.C.S., and of the Microscopical and many other societies, when making slides of the infusoria and other objects of that class, used to employ carefully smoked glass, and on this with the point of a fine needle he used to draw or etch many of the most difficult of the forms seen with the microscope. When finished, the dust was puffed away, and over it was then flowed an exceedingly thin varnish, just sufficient to fix the dry carbon or soot. The covering glass had narrow strips of paper pasted round the outside edges, and occasionally he coated the inside surface of this glass with transparent coloured varnishes. The effect was very beautiful.

Would this method as adapted for the purpose not suit well for the opaque backgrounds of photos of statuary? One thing is certain, if a slip is made it is very easily corrected with a taper, or rather smoke from one that is lighted. BULLS-EYE.

Discs and their Relation to the Lens.

WHEN one is called upon to give a lantern entertainment in a hall or room, the following questions will be uppermost in the mind of the operator:—(1) What size of disc can be obtained with a lens of a certain focus? (2) How far distant from the screen must the lantern be placed in order to get a disc of a certain size with a given lens of ascertained focus? Doubtless many more questions will arise, but these mentioned will be of the most importance. It is a "rule of thumb" practice for an operator to wheel his apparatus up and down a room in order to find the desired position from which to officiate, and the minds of any spectators will not be confirmed in the idea that the exhibitor thoroughly understands his business. How very much more simple and satisfactory is it to reason thus before starting for the place of entertainment. A screen of —ft. diameter is required, so if I bring a lens of — focus the lantern must be —ft. from the screen, the length of the room being of course taken into consideration in order to ascertain that it is possible to erect the lantern at the desired distance. This having been ascertained beforehand, all that is required is to take an objective of the desired focus and measure off the necessary space between the screen and the place where the lantern should be set.

Supposing we are called upon to operate the lantern in a hall 25ft. in length, we first ascertain the size of disc desired, which we will suppose to be 10ft. With an objective having a focus of 6in., how far from the screen must the lantern be placed in order to produce a 10ft. disc?

Here is the rule by which it can be ascertained.

Let A=focus of objective.
„ B=diameter of slide.
„ C= „ „ disc.
„ D=distance between the lantern and screen.

Multiply the diameter of the circle required (C) by the focus of the lens (A) and divide by the diameter of the slide (B).

$$\frac{C \times A}{B} = D = \frac{10 \times 6}{3} = 20 \text{ feet.}$$

It is thus seen that in order to produce a 10ft. disc with a 6in. objective, the lantern must be placed 20ft. from the screen.

On the other hand, we may possess several lenses of different foci, and it is necessary that the screen and the lantern must occupy certain positions which we will suppose to be just 20ft. apart, and that the diameter of the disc must be 10ft. How are we to ascertain whether we must use a lens of 4, 5, 6, 7, or other number of inches in focus?

Multiply the distance between the lantern and the screen (D) by the size of opening of slide (B) and divide by the size of disc (C).

$$\frac{D \times B}{C} = \text{A focus of lens} = \frac{20 \times 3}{10} = 6\text{in. focus.}$$

Again: We have a lens of 6in. focus, and intend that 20 feet shall intervene between the lantern and the screen, and wish to know what size of disc can be produced. In order to calculate this it is necessary that we multiply the distance between the lantern and the screen (D) by the size of slide opening (B), and divide by the focus of the lens used (A), which gives us

$$\frac{D \times B}{A} = C \text{ size of disc} = \frac{20 \times 3}{6} = 10\text{ft. diam. of disc.}$$

The following Ready Reference Table has been computed by the foregoing rule, and by a glance it will show the relations between lantern and disc with object-glasses of every focus from 4in. to 15in.

READY REFERENCE TABLE.

Distance between Lantern and Screen.	FOCUS OF LENS.																					
	4in.		5in.		6in.		7in.		8in.		9in.		10in.		11in.		12in.		13in.		14in.		15in.	
	DIAMETER OF DISC.																					
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
10 feet.	7	6	6	0	5	0	4	3	3	9	3	4	3	0	2	9	2	6	2	4	2	2	2	0
11 „	8	3	6	7	5	6	4	9	4	2	3	8	3	4	3	0	2	9	2	6	2	4	2	2
12 „	9	0	7	2	6	0	5	2	4	6	4	0	3	7	3	3	3	0	2	9	2	7	2	5
13 „	9	9	7	10	6	6	5	7	4	11	4	4	3	11	3	7	3	3	3	0	2	9	2	7
14 „	10	6	8	5	7	0	6	0	5	3	4	8	4	2	3	10	3	7	3	3	3	0	2	9
15 „	11	3	9	0	7	6	6	5	5	8	5	0	4	6	4	1	3	9	3	6	3	3	3	0
20 „	15	0	12	0	10	0	8	7	7	6	6	8	6	0	5	6	5	0	4	7	4	3	4	0
25 „	18	9	15	0	12	6	10	9	9	4	8	4	7	6	6	10	6	3	5	9	5	4	5	0
30 „	22	6	18	0	15	0	12	10	11	3	10	0	9	0	8	2	7	6	6	11	6	5	6	0
35 „	26	3	21	0	17	6	15	0	13	1	11	8	10	6	9	6	8	9	8	1	7	6	7	0
40 „	30	0	24	0	20	0	17	2	15	0	13	4	12	0	10	10	10	0	9	2	8	6	8	0
45 „	33	9	27	0	22	6	19	3	16	10	15	0	13	6	12	3	11	3	10	4	9	8	9	0
50 „	37	6	30	0	25	0	21	5	18	9	16	8	15	0	13	8	12	6	11	6	10	9	10	0

EXAMPLES.—An 8in. focus lens at a distance of 35ft. will give a disc of 13ft. 1in. To produce a disc of 12ft. with a lens of 10in. focus, the lantern and screen must be separated by 40ft. To produce a disc of 15ft. at a distance of 45ft. will require a lens of 9in. focus.

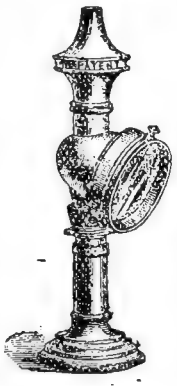
A Curious Experiment with Light.

BLOCK out the light from a room in which the sun is shining, and in the shutter or other barrier cut a hole five or six inches square and insert two or three thicknesses of deep blue glass, and into the beam of light thus admitted into the room hold a small ornament or other article made of uranium or "canary" glass, and it will immediately present the appearance as if its temperature were raised to a white heat.

Editorial Table.

THE "PERFECTION" LAMP.

WE have before us a neat lamp suited for many purposes, termed *The Perfection*, which name seems borne out by its manifold uses. Not only is it a perfect lamp for photographic dark-room illumination, but by simply inserting a clear glass in place of the non-actinic one, it gives a light well adapted for lantern entertainment readings. The lamp is nickel-plated, and being fitted with a parabolic reflector and telescopic stand, is susceptible of varied adjustments. It is also suitable for the adornment of a drawing-room table as a reading lamp. It is supplied with a hard form of candle, each of which will burn without attention for about six hours. The manufacturers are Messrs. Benham and Froud, Ld., Chandos Street, London. We understand that arrangements have been made whereby this lamp may be obtained through all photographic dealers.



EIKONOGEN.

WE have received from Messrs. Marion and Co. a sample packet of the new developer, *Eikonogen*. On using it according to instructions, we find that it yields a good vigorous image with an exposure of rather less than that required for pyrogallic acid. For this reason it ought to be invaluable when used for detective work.

"THE PHILOSOPHY OF SIGHT," by A. Fournet. (Swan Sonnenschein and Co., Paternoster Square, London.)—Mr. Fournet's work is a very concise one. He starts with the question, Is bad sight on the increase? and leads the reader step by step to show that it is not bad sight that is on the increase, but that many people are becoming alive to the fact that by the aid of suitable glasses they are better enabled to see distinctly. Under a series of headings the author treats of the eye as an optical instrument, and gives reasons why people having short sight see near and *vice versa*. The book contains nearly two hundred pages, and is destined to become one of our text books upon the subject. It sells at a shilling.

Applications for Patents, 1889.

No. 10307.—June 25, G. Clulow, "An improved form of photographic plate and film holder, or double back."

No. 10393.—June 26, J. S. Fairfax, "Improvements in or relating to films or supports for photographic negatives or prints."

No. 10418.—June 27, H. J. Shawcross, "Improvements in or connected with photographic printing frames."

No. 10535.—June 29, H. Bogaerts, "Reproduction of oil paintings, drawings, or photographs from Nature, patterns or stuffs."

No. 10585.—July 1, L. G. Strangeman, "Improved camera stand."

No. 10594.—July 1, J. Kershaw, "Improvements in shutters for photographic cameras."

No. 10602.—July 1, J. Brownlow, "Improvements in photographic shutters."

No. 10853.—July 5, M. Walker and W. Kerslake, "Improvements in photographic cameras."

No. 11354.—July 15, J. Joel, "Coin feed apparatus for automatically photographing persons and objects."

No. 11416.—July 16, B. J. Edwards, "Improvements in photographic cameras and shutters."

No. 11724.—July 23, J. D. Cleminson and H. W. G. Bloomfield, "Improvements in view finders for cameras."

No. 11923.—July 26, F. W. Hochheimer, "Improvements in photographic albums."

No. 12010.—July 29, W. J. Payne, "Portable photographic camera."

No. 12230.—August 2, E. A. Williams, "Apparatus for realistically representing horse and other races in progress upon a stage."

No. 12343.—August 8, D. W. Noakes, "Method of mounting photographic and other lenses."

Correspondence.

LIMELIGHT.

[*To the Editor.*]

SIR,—I propose setting up a limelight for use with my lantern, and should be obliged by some reliable information about the oxy-ether light. Is it as safe as other forms of limelight? What is the best and safest form of saturation? A writer in the *British Journal Photographic Almanac* says, "I have recently used two forms of ether saturators, one made on the Ives' principle with a U tube, and another designed by a professor of physics with a straight tube. In both instances the light produced was very good indeed. . . . I found the Ives' pattern saturator, when connected with a specially constructed mixed gas jet having a pumice chamber immediately below the nozzle, gives a light as nearly as possible equal to that of any oxy-hydrogen mixed gas jet of first-class construction."—Yours, &c., W. MILES BARNES.

Monkton Rectory, Dorchester.

Can any correspondent tell me where a lantern slide of "Old London," as exhibited in the Healtheries, Fisheries and other exhibitions can be obtained, and also one of a gladiatorial combat in ancient Rome? W. MILES BARNES.

STEVENS INSTITUTE.

[*To the Editor.*]

SIR,—Dr. Henry Morton, of Philadelphia, was not—as stated in last issue of your journal—the founder of the Stevens Institute. It was founded by the late Edwin A. Stevens. Dr. Morton has endowed it very richly, and has for many years been its president. He is a man of great ability.—Yours, &c., PHILADELPHIAN.

Selections.

As a means of education in the home, the camera will be found a great factor, and a delightful field of enjoyment open to all during the warmer months in pleasant strolls in the country, picnics, fishing and hunting parties, at the seashore, and yachting.—*Gayton A. Douglas.*

* * *

Those who do not object to long exposures will find "gelatine lantern slide" plates admirably adapted for pure landscape work.—*C. Hussey.*

* * *

To those of our enterprising amateurs who desire to show their skill in treating difficult and yet beautiful subjects, let us say that fine photographs of large size of the hand or foot are rarely seen. A shapely hand holding a cigar or pen, or playing on some musical instrument, or a well-formed foot in picturesque position, will be well worthy of the photographer's attention.—*Ellerslie Wallace.*

* * *

Every photographic society might do well to keep an enlarging apparatus always standing ready for the use of its members, that is to say, when the society has a home of its own, while in other cases a substitute may be found in the shape of an enlarging lantern, which any member can hire at a nominal fee.—*Thomas Bolas.*

* * *

I prefer the ether apparatus to the oxy-calcium spirit lamp for the limelight, and whenever house gas cannot be obtained, and a satisfactory and a powerful light is required, I should always employ the vapour of ether as a substitute.—*G. R. Baker.*

* * *

Try every new formulæ and adhere to the best.—*Max Boelte.*

* * *

With small plates there are great temptations to get through "quantity" to the neglect of "quality."—*W. Clement Williams.*

* * *

One of the very best mediums I have ever used for lantern slides and transparencies has been a collodion emulsion compounded as follows:—Alcohol, 8oz.; ether, 8oz.; cotton, 128 grains; bromide of ammonia, 128 grains; nitrate of silver, 240 grains.—*T. C. Roche.*

* * *

What a rich field for photographic study are the clouds! Their coloured character would recommend the employment of orthochromatic plates.—*R. Spitaler.*

* * *

In oil lanterns there are various qualities. Some appear to be made in the same way as pots and pans, utterly regardless of any laws of combustion; others are constructed on scientific principles. The best results are of course obtained from the latter.—*C. D. Bishop.*

* * *

Cycling is a delightful pastime; so is photography, and a combination of the two pastimes is still more so.—*G. V. J. Poirin.*

* * *

If the light in the lantern has been placed at shorter distance from the condenser than its focus, the light would not emerge tapering to a point in front of the lantern, but the other way, expanding sugar loaf style, getting fainter and fainter.—*A. Fournet.*

* * *

For the tourist wishing only to take occasional views, a detective camera held in the hand would be all that is required.—*P. H. Dudley.*

Notes and Queries.

The Editor has to thank numerous correspondents who have sent their good wishes and complimentary remarks respecting *The Optical Magic Lantern Journal and Photographic Enlarger.*

W. R. R.—See table published in this number.

H.—The difference in the diameter of the objectives, they being both of the same focus, does not affect the size of the disc produced, but the larger lens will give more illumination.

Jas. Hawtin.—The white wall will do well for projecting the pictures upon, and it is quite unnecessary to erect a screen at all.

Purchaser.—(1) If you explain the matter to the firm from whom you bought it, they will doubtless rectify matters. (2) Yes; they are of high repute.

Magic writes:—"At many places of amusement I have noticed *a photograph of your future husband or wife for one penny.* The paper seems to be quite clean, but on being dipped in warm water a portrait appears upon it. How is this paper prepared?" *Answer.*—Print on mat-surface paper. Wash, fix (without toning) in hyposulphite of soda, and again wash. The image is then bleached out by immersion in a solution of bichloride of mercury, after which it must be well washed. It is then stored away until required. By wetting it with a solution of hyposulphite of soda (warm or cold) the portrait will appear.

Rev. R. R. C.—Thanks for your kind wishes. Send us a print of the group, and we will let you know what sort of transparency can be made from the negative. If you arranged the group more in the form of a semi-circle, the figures at the end will be sharp. We cannot, however, give an opinion without seeing it.

Doctor.—Read the article on *Screens*, by Mr. W. Brooks, of Reigate, in this issue. It will supply answers to each of your queries.

Argentous Chloride asks: (1) What is the most simple and reliable way of registering slides in the lantern, no matter the size in width, so as to suit foreign as well as English slides? (2) What is the Noakes system of registering slides in the lantern? (3) Will unbleached calico suit as well as linen for a screen? (4) Is there a more perfect way of erecting a screen than by way of poles and socket with brass angle pieces? (5) How is the *dancing skeleton* slide constructed? (6) How does a wheel of life work in the lantern—not horizontally, surely? *Answer.*—(1) The self-centreing slides are all made on the principle of having two levers acting in opposite directions, and may be obtained from many manufacturers whose business announcements will be found in our outer columns. (2) Mr. Noakes keeps his system of registering as a trade secret, which he would prefer not to divulge at present. (3) The whiter the screen the better. (4) We know of no better way. (5) The dancing skeleton consists of a series of figures in consecutive positions, which are made to change with extreme rapidity. (6) The wheel of life is a slide containing two revolving discs, one of them opaque with series of slots radiating from the centre, the figures being painted on the other. These and other topics will be fully treated eventually in our columns.

Varnish for Interiors of Lanterns.—A good dead black suitable for this purpose may be prepared of vegetable black, two parts; turpentine, two parts; gold size, one part. This must be thoroughly mixed, then painted on, care being taken that it is not allowed to run. When dry, an even, dull black should be the result.

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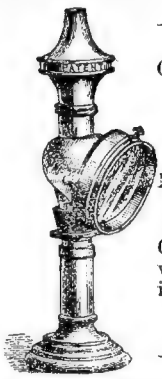

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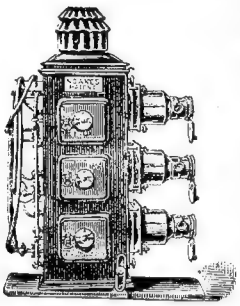

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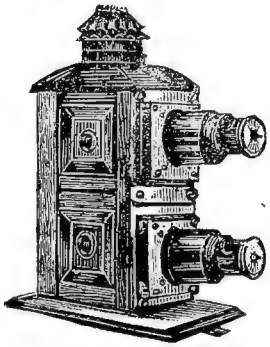

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See also his DICTIONARY OF PHOTOGRAPHY.

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New things for this season—Paris Exhibition, South Africa (including Diamond and Gold Mines, Isle of Wight, Ticket of Leave, Bunch of Primroses and Magic Wand, by Sixs, Marvellous Cure, Harry's Donkey Ride, Look at the Clock, Betsy and I are out, the Wreck of the Hesperus, the Village Blacksmith, a large number of Double Comics called the Catastrophe Series, these are quite new and original

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This Carrier is at once simple and efficient. The slides can be easily inserted in the dark; they cannot fall out, and are always truly centred; and whilst one is being exhibited the following one is ready to follow.

PRICE - - - - 3s.

RAMSDEN'S PORTABLE LANTERN SCREEN.

(REGISTERED)

This Screen has been designed principally for the exhibition of Lantern Slides in private houses. The sheet is 7 feet square, and is perfectly flat. When not in use the whole folds up into a convenient parcel, easily carried to any place where the exhibition is to take place.

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RAMSDEN'S GELATINE PLATES.

FOR THE

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These Plates have now been before the public some years, and are universally admitted to be unequalled. Good Dense Slides may be produced from thin negatives. If detail is there the Slide is certain to be good.

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MANUFACTURED BY J. W. RAMSDEN, HEADINGLEY, LEEDS.

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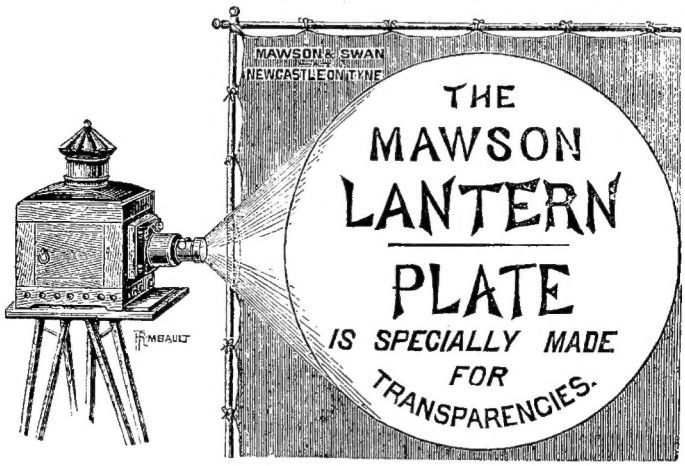

THE

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Was the Novelty of 1888 season, and marks an entirely new era inCamera construction, dispensing as it does with separate Dark Slides. In the new arrangement a number of plates (preferably and conveniently 1 doz., or fewer if a large size) are contained in a receptacle of extremely moderate dimensions, which forms at once Dark Slide and Changing Box, the Plates being changed after exposure, in the open air, without any extraneous shelter or assistance. Rouch's Patent Portable Camera, fitted with Changing Back:—$\frac{1}{2}$-plate, **£6 10s.**; 1-1 plate, **£8 17s. 6d.**

W. W. ROUCH & CO., 180, STRAND, LONDON.

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